

PRELIMINARY SEWER REPORT
QUARRY CREEK
Lots 1-16
October 2012
CT 11-04

Prepared For:
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I. INTRODUCTION

This report supports the preliminary design of the proposed sewer improvements associated with Quarry Creek, (Project). The project is located in the City of Carlsbad and is bound generally by State Route 78/Haymar Drive to the north, undeveloped land to the west, City of Oceanside boundary to the east, and Calavara Hills to the south. The total project site consists of 155.38-acres of gross project area. Figure 1 shows the vicinity map for the project.

II. PROJECT DESCRIPTION

The proposed project includes mass grading pads and supporting public roadway infrastructure for the future development of 656 market rate residential units (Lots 1 thru 5), parks (Lot 6, 8 thru 11), community facility (Lot 7) and open space (Lots 12 thru 16) on approximately 155.38 acres. As part of the proposed sewer improvements, the City of Carlsbad will be installing a new sewer main in Simsbury Court and abandoning the existing Simsbury sewer lift station. The project will provide a sewer main extension from Street A to the right-of-way Simsbury Court through Lot 14 (see Exhibit A).

A portion of the existing development to the south, Calavara Hills, is currently being sewered by a lift station (Simsbury Lift Station) located in Simsbury Court (see Dwg. 244-3). With development of the Quarry Creek project, the City of Carlsbad will propose to abandon the Simsbury Lift Station and connect to the public sewer system in Quarry Creek. The existing Simsbury sewer EDU's (designated as tributary area 7A) is 608 EDU and is included in this sewer analysis. The City's 2012 Sewer Master Plan update has determined that it is not cost effective to direct the sewer flows from the Villas Lift Station to Quarry Creek and is therefore not included in this sewer analysis.

The existing commercial development to the east, within the City of Oceanside, currently sewers through a private sewer lift station in Marron Road (Dwg. R12045). It pumps wastewater back to College Blvd. and City of Oceanside sewer system. With development of the Quarry Creek project, the Marron Road sewer lift station could be abandoned, provided a flow exchange agreement is approved between the Cities of Vista, Carlsbad and Oceanside. If the agreement is approved, then Oceanside will be allowed to connect to the proposed public Carlsbad sewer in Street "A". The project will provide a sewer main up to the existing 8-inch sewer stub in Marron Road, but will not connect until the agreement is in place. The existing sewer EDU's generated from the commercial property (Marron Road lift station) to the east and the future community facility area east of Lot 1 are included in this sewer analysis for conveyance capacity verification.

The proposed public backbone sewer system for Quarry Creek will be located in Streets "A", Street "B" and through Lot 11 and will connect into the existing 36inch-Buena Vista Creek sewer main in Haymar Drive to the north. As Street "B" crosses the Buena Vista Creek, a vehicular bridge will be constructed. The proposed sewer main in Street

“B” will be suspended on the bridge. The proposed sewer main will not encroach into the 100-year water surface elevation (See Sheet 9 of CT 11-04).

The proposed project proposes to connect into MH#32 per City of Vista D-1981. Since the project connects into the VC-1 segment, the City of Carlsbad and the City of Vista will need to enter into an agreement and/or some other form of approval in order for Carlsbad to obtain capacity rights to connect into the VC-1 segment owned by City of Vista.

III. DESIGN CRITERIA

Using the Unit Flow Generation Factors (Table 5-1, located in Appendix 1):

1. Existing Simsbury EDU from the Simsbury Lift Station is 608 EDU's
2. Existing EDU from Marron Road is 203 EDU's (based on the conversion factor of 1 EDU per 1,800 square feet of building- existing 364,000s.f. of building)
3. Proposed EDU from Lots 1 thru 5 generate 656 EDU's (based on the proposed number of units)
4. The proposed parks and community facilities lots (Lots 7 and 8) generate 33 EDU's (based on the conversion factor of 40% improved pads to square feet of building and 1 EDU per 1,800 square feet of building)
5. Potential for sewer services to Oceanside parcel east of Lot 1 subject to approval by the City of Carlsbad generate 11 EDU's (based on the conversion factor of 40% improved pads to square feet of building and 1 EDU per 1,800 square feet of building)

The proposed EDU generated by the Quarry Creek project, and surrounding commercial and residential developments is 1,511 EDU's.

IV. CONCLUSION

In conclusion, it was determined that the proposed eight to twelve inch mains in Streets A and B, are suitable to carry the proposed sewer flows. A minimum of 2 fps velocity has been achieved (see Table 1), with pipes less than 1/2 D/d.

Figure 1: Vicinity Map

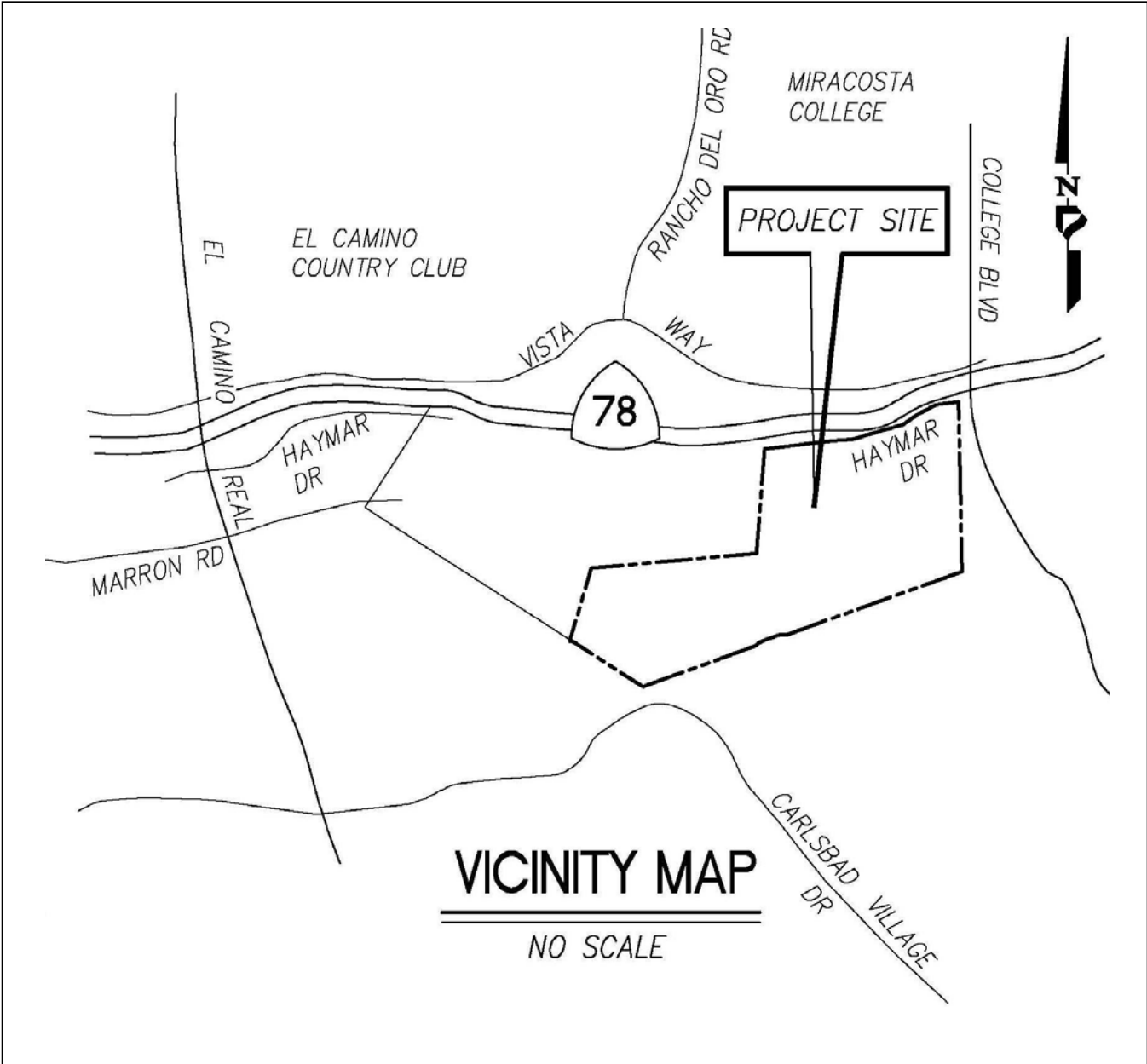


Table 1

Sewer System Design Flows and Calculation

Pipe MH to MH	D.U.	Demand	Q (design)		Q-cfs	Slope	n	Diameter (ft.)	K	D/d	Ca	A=Cad (sf)	V (fps)
			Peak Factor	Q-gpd									
23-22	608	133760	2.5	334400	0.5176	0.0528	0.011	0.67	0.072192	0.27	0.1711	0.077	6.74
22-21	608	133760	2.5	334400	0.5176	0.01	0.011	0.67	0.165885	0.41	0.3032	0.136	3.80
21-20	679	149380	2.5	373450	0.5781	0.0088	0.011	0.67	0.197484	0.46	0.3527	0.158	3.65
20-19	679	149380	2.5	373450	0.5781	0.0097	0.011	0.83	0.106186	0.33	0.226	0.156	3.71
19-18	679	149380	2.5	373450	0.5781	0.0725	0.011	0.83	0.038841	0.2	0.1118	0.077	7.51
18-17	745	163900	2.5	409750	0.6343	0.0044	0.011	0.83	0.172987	0.42	0.313	0.216	2.94
17-16	745	163900	2.5	409750	0.6343	0.0055	0.011	0.83	0.154725	0.4	0.2934	0.202	3.14
16-15	745	163900	2.5	409750	0.6343	0.004	0.011	0.83	0.181431	0.44	0.3328	0.229	2.77
15-14	745	163900	2.5	409750	0.6343	0.004	0.011	0.83	0.181431	0.44	0.3328	0.229	2.77
14-13	745	163900	2.5	409750	0.6343	0.004	0.011	0.83	0.181431	0.44	0.3328	0.229	2.77
13-12	817	179740	2.5	449350	0.6956	0.004	0.011	0.83	0.198965	0.46	0.3527	0.243	2.86
12-11	891	196020	2.5	490050	0.7586	0.004	0.011	0.83	0.216986	0.48	0.3727	0.257	2.95
11-10	891	196020	2.5	490050	0.7586	0.004	0.011	0.83	0.216986	0.48	0.3727	0.257	2.95
10-5	904	198880	2.5	497200	0.7697	0.004	0.011	0.83	0.220152	0.49	0.3827	0.264	2.92
Stub-9	223	49060	2.5	122650	0.1899	0.005	0.011	0.67	0.086044	0.28	0.18	0.081	2.35
9-8	223	49060	2.5	122650	0.1899	0.01	0.011	0.67	0.060843	0.25	0.1535	0.069	2.76
8-7	223	49060	2.5	122650	0.1899	0.04	0.011	0.67	0.030421	0.18	0.0961	0.043	4.40
7-6	223	49060	2.5	122650	0.1899	0.04	0.011	0.67	0.030421	0.18	0.0961	0.043	4.40
6-5	295	64900	2.5	162250	0.2512	0.054	0.011	0.67	0.034636	0.19	0.1039	0.047	5.39
5-4	1199	263780	2.5	659450	1.0208	0.0047	0.011	1	0.163792	0.42	0.313	0.313	3.26
4-3	1511	332420	2.5	831050	1.2865	0.0052	0.011	1	0.196239	0.46	0.3527	0.353	3.65
3-2	1511	332420	2.5	831050	1.2865	0.0046	0.011	1	0.208645	0.47	0.3627	0.363	3.55
2-Ex.#32	1511	332420	2.5	831050	1.2865	0.0041	0.011	1	0.221002	0.49	0.3827	0.383	3.36

APPENDIX 1
UNIT FLOW GENERATION FACTORS

Table 5-1 Unit Flow Generation Factors	
General	To convert Equivalent Dwelling Units to flow assume 220 gallons per day average flow.
Commercial Property	To convert raw land to square feet of building space assume 30 percent coverage. To convert improved pads to square feet of building space assume 40 percent coverage. To convert square feet of a building to Equivalent Dwelling Units assume 1,800 square feet per EDU.
Industrial Property	To convert raw land to square feet of building space assume 30 percent coverage. To convert improved pads to square feet of building space assume 40 percent coverage. To convert square feet of building to Equivalent Dwelling Units assume 60 percent of space is warehouse and 40 percent is office. For warehouse space 5,000 square feet equals one EDU and for office <u>1,800</u> square feet equals one EDU.

City of Carlsbad – Unit Flow Generation Factors

SCALE 1' = 120'

